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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,026	08/20/2003	Michio Arai	66361-060-7	3845
25269	7590	05/03/2006	EXAMINER	
DYKEMA GOSSETT PLLC FRANKLIN SQUARE, THIRD FLOOR WEST 1300 I STREET, NW WASHINGTON, DC 20005			RUDDOCK, ULA CORINNA	
		ART UNIT	PAPER NUMBER	
		1771		

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/644,026	ARAI, MICHIO	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 21 April 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 3-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 3-7 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 21, 2006, has been entered.
2. The Examiner has carefully considered Applicant's response. In view of Applicant's amendments, new references have been added to the rejection.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 103***

4. Claims 3-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 58-083420 (JP '420) in view of Cordova et al. (US 6,276,254) and Li et al. (US 5,160,776) and Rothrock et al. (US 6,081,929). JP '420 discloses a safety helmet comprising an inner and outer layer having an epoxy resin having glass fibers (i.e. fiber reinforced panels). The inner layer is made of three layers of non-woven fabric having resin coated between the layers to make an integral resin immersed non-woven fabric. JP '420 discloses the claimed invention except for the teaching that a net member is located between the first and second nonwoven layers, that the openings of the net have sides between 2 and 45 mm in length, that the strands have diameters of

between 0.1 and 4mm, and that there is another net member located between said second and third nonwoven layers.

Cordova et al. (US 6,276,254) disclose armor systems used in helmets (col 1, ln 56). The armor system comprises first and second layers. The first layer comprises a plurality of networks selected from the group consisting of an uncoated nonwoven network of randomly oriented fibers and an uncoated knitted, preferably tightly network of fibers. The second layer comprises a plurality of networks selected from the group consisting of a loosely woven network of fibers, an open knitted network of fibers, a braided network of fibers, and a nonwoven network of oriented fibers (col 3, ln 33-42). It should be noted that the Examiner is equating Cordova's open knitted network of fibers to a scrim. The fibers can be thermoplastic (i.e. polyester and polyolefins) and thermosetting (i.e. phenolics and epoxies) col 5, ln 22-25). In another embodiment, the first layer can comprise a plurality of networks selected from the group consisting of an uncoated nonwoven network of randomly oriented fibers and an uncoated, open knitted network of fibers (col 10, ln 48-52).

Rothrock et al. (US 6,081,929) disclose an impact protection helmet comprising a shell constructed from a thermoset resin and filled with fiberglass (i.e. fiber-reinforced plastic panel) (col 5, ln 26-28) and a screen comprising a mesh in a grid of about 0.07 inch spacing, i.e. 1.78 mm, which can be rounded up to "2" to meet Applicant's lower limit. (col 7, ln 33-35).

Li et al. (US 5,160,776) disclose a ballistic resistant composite article for use in helmets (col 1, ln 15). The article comprises organic filaments (col 4, ln 62) which can have a diameter of .01 cm, i.e. .1 mm (col 4, ln 4-6).

It would have been obvious to one having ordinary skill in the art to have used Cordova's open knitted thermosetting or thermoplastic fibers in between the first and second nonwoven layers of the intermediate layer of JP '420, motivated by the desire to create a helmet having increased strength and puncture resistance.

It also would have been obvious to have used Rothrock's disclosure of almost 2 mm grid spacing and Li's filament diameter of 0.1 mm in the net material of JP '420 and Cordova, motivated by the desire to create a net material that has increased dimensional stability and durability.

Finally, it would have been obvious to have added a second net layer to be placed between the second and third nonwoven layer, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. In the present invention, one would have been motivated by the desire to create a laminate that has enhanced strength and durability.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 58-083420 (JP '420), Cordova et al. (US 6,276,254), Li et al. (US 5,160,776), and Rothrock et al. (US 6,081,929), as applied to claim 3 above, and further in view of Beretta (US 5,053,264). JP' 420, Cordova et al., Li et al., and Rothrock et al., disclose the claimed invention except for the teaching that the net has protrusions on opposite sides thereof.

Beretta (US 5,053,264) discloses a plastic material net structure having high impact resistance (col 5, ln 55; col 6, ln 27-28). The net structure has node elements which protrude from both faces of the net (claims 3 and 5). It would have been obvious to one having ordinary skill in the art to have made the net material of JP' 420, Cordova et al., Li et al., and Rothrock et al. have

protrusions on both faces of the net as disclosed by Beretta, motivated by the desire to create a laminate that has increased impact resistance.

***Response to Arguments***

6. Applicant's arguments with respect to claims 3-5 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ula C. Ruddock whose telephone number is 571-272-1481. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel H. Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

UCR UCR

*Ula Ruddock*  
**Ula C. Ruddock**  
Primary Examiner  
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